

REMARKS

This Amendment is filed in response to the Final Office Action mailed on November 26, 2007, and is herewith filed a Request Continuing Examination. All objections and rejections are respectfully traversed.

Claims 1-16, and 39-51 are in the case.

Request for Interview

The Applicant respectfully requests a telephonic interview with the Examiner after the Examiner has had an opportunity to consider this Amendment, but before the issuance of the next Office Action. The Applicant may be reached at 617-951-3067.

Claim Rejections – 35 U.S.C. §112

At paragraphs 5-11 of the Office Action, claims 1-16, 39, 40, 47-49, and 51 were rejected under 35 U.S.C. 112, second paragraph.

Specifically, claim 1 was rejected because the Examiner stated that “identifying blocks within the plurality of blocks for use by the I/O operations so as to substantially maximize chain lengths of reads for calculation of parity” is indefinite. Applicant has amended the claim to add selecting contiguous blocks on a single storage device. Additionally, the specification page 14, line 12 to page 16, line 22 and Figure 1B describes a decision based on maximizing chain length or minimizing read operation. Additionally, Applicant has amended the claim to add the types of parity calculation methods used in

the parity decision process. Accordingly, Applicant believes claims 1-16, 39, 40, and 51 to be allowable over the 112 rejection.

Claims 47-49 were rejected for insufficient antecedent basis. Applicant has amended claim 47 and believes the claims allowable over the 112 rejection.

Claim Rejections – 35 U.S.C. §102

At paragraphs 12-32 of the Office Action, claims 1-16, 39-41, and 51 were rejected under 35 U.S.C. 102(e) as being anticipated by Corbett, et al. U. S. Patent No. 6,993,701, hereinafter Corbett.

Applicant's claimed invention, as set forth in representative claim 1, comprises in part:

1. In a file server having a storage operating system, a method for managing storage of data in a plurality of storage devices, each storage device having a plurality of blocks for storing data, comprising:
generating block layout information in a file system layer of the storage operating system by determining which blocks within the plurality of blocks are allocated for storing data and which are unallocated;
transferring the block layout information from the file system layer to a RAID layer of the storage operating system; and
responsive to the block layout information, controlling the execution of I/O operations at the RAID layer by identifying a plurality of contiguous blocks on a single storage device within the plurality of blocks for use by each I/O operation so as to substantially maximize chain lengths of reads for calculation of parity;
selecting a parity subtraction method or a recalculation method for parity calculation based on the method that requires a fewest number of read operations to compute parity for the I/O operations; and
responsive to the block layout information and the parity calculation method selected, identifying the blocks within the plurality of blocks for use by the I/O operations.

Corbett discloses a “row-diagonal” parity technique. The technique reduces overhead of computing diagonal parity, where the diagonal parity spans all data disks and row parity disks of a storage array.

Applicant respectfully urges that Corbett is silent concerning Applicant's claimed novel *responsive to the block layout information, controlling the execution of I/O operations at the RAID layer by identifying a plurality of contiguous blocks on a single storage device within the plurality of blocks for use by each I/O operation so as to substantially maximize chain lengths of reads for calculation of parity... selecting a parity subtraction method or a recalculation method for parity calculation based on the method that requires a fewest number of read operations to compute parity for the I/O operations*. In further detail, in Applicant's claimed invention, an operating system identifies which storage blocks within a plurality of storage devices shall be used for the write operation. Further, the storage operating system identifies which blocks on each storage device are contiguous on each storage device. The system then determines whether to maximize chain lengths or minimize read requests. The decision is based on whether maximizing chain lengths or minimizing read requests require the fewest number of read operations. (See page 14, line 12 to page 16, line 22 and Figure 1B). A chain is a number of contiguous blocks on a single storage device. After that decision is made, the system determines whether to use the parity subtraction method or the recalculation method for calculating parity of each stripe. Selecting the appropriate parity method is based on the method requiring the fewest number of read operations. Finally, the write transaction is written in a single transaction to the storage devices.

That is, Corbett has no disclosure of Applicant's claimed *identifying a plurality of contiguous blocks on a single storage device within the plurality of blocks for use by each I/O operation so as to substantially maximize chain lengths of reads for calculation of parity... selecting a parity subtraction method or a recalculation method for parity calculation based on the method that requires a fewest number of read operations to compute parity for the I/O operations.*

Accordingly, Applicant respectfully urges that Corbett is legally insufficient to anticipate the present claims under 35 U.S.C. §102 because of the absence of the Applicant's claimed novel *responsive to the block layout information, controlling the execution of I/O operations at the RAID layer by identifying a plurality of contiguous blocks on a single storage device within the plurality of blocks for use by each I/O operation so as to substantially maximize chain lengths of reads for calculation of parity... selecting a parity subtraction method or a recalculation method for parity calculation based on the method that requires a fewest number of read operations to compute parity for the I/O operations.*

Allowable Subject Matter

At paragraph 33, claims 45-46 were deemed in condition for allowance.

Additionally, at paragraph 34, claims 47-49 were allowable if rewritten or amended to overcome the rejection under 35 U.S.C. §112, second paragraph.

All independent claims are believed to be in condition for allowance.

All dependent claims are dependent from independent claims which are believed to be in condition for allowance. Accordingly, all dependent claims are believed to be in condition for allowance.

Favorable action is respectfully solicited.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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